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App. Ser. No. 10/634,779
Docket No. SH-0037US
RYU.014

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) An optical fiber preform from which an optical fiber is made by drawing, the optical fiber preform comprising:

a multi-layer structure comprising silica-based glass and including:

an inside area ~~portion~~ disposed at an inner side of the radial direction of a position corresponding to two times of mode field diameter through which light having a wavelength of about 1385 nm propagates when the light passes through an optical fiber made by drawing the preform;

an outside portion disposed at an outer side of said inside area ~~portion~~, wherein at a temperature T_s, a maximum value V_0 [log(poise)] of a radial viscosity distribution in said outside portion is greater than 7.60 [log(poise)] and a maximum value V_0[log(poise)] of radial viscosity distribution in said inside area ~~portion~~ is 7.60 [log(poise)]; and

an outermost portion formed on said outer portion and having a viscosity less than a maximum value V_0 at the temperature T_s.

2. (Currently amended) An optical fiber preform as claimed in claim 1, wherein said ~~inside and~~ outside area comprises a plurality of layers, the plurality of layers comprising ~~portions comprise, respectively,~~ an inner clad layer having a first viscosity at the ~~a predetermined~~ temperature Ts and an outer clad layer having a second viscosity at the ~~said predetermined~~ temperature Ts, said second viscosity being greater than said first viscosity.

3. (Previously presented) An optical fiber preform as claimed in claim 2, wherein said inner clad layer comprises synthetic quartz glass and said outer clad layer comprises quartz glass containing crystal type silica.

4. (Previously presented) An optical fiber preform as claimed in claim 3, wherein said quartz glass containing crystal type silica as a high viscosity clad layer comprises native quartz or crystallization synthetic quartz glass.

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5. (Previously presented) An optical fiber preform as claimed in claim 2, wherein said inner clad layer comprises synthetic quartz glass having a lower viscosity than pure synthetic quartz glass by being doped with at least one dopant selected from the group consisting of chlorine, germanium, fluorine, and phosphorus, and said outer clad layer comprises synthetic quartz glass having a higher viscosity than the inner clad layer by not being doped or doped with small amount of dopant.

6. (Previously presented) An optical fiber preform as claimed in claim 1, wherein said maximum value V_0 of said radial viscosity distribution is greater than 7.90 [log(poise)].

7. (Currently amended) An optical fiber preform as claimed in claim 1, wherein said inner area ~~portion~~ comprises an inner clad layer and said outer area ~~portion~~ comprises an outer clad layer with high viscosity.

8. (Previously presented) An optical fiber preform as claimed in claim 1, wherein said outermost portion comprises an outermost clad layer having a viscosity less than V_0 at the temperature T_s.

9. (Original) An optical fiber prefom as claimed in claim 1, wherein a surface of the optical fiber preform has a viscosity at temperature T_s which is lower than V_0.

10. (Currently amended) An optical fiber preform as claimed in claim 1, wherein a portion of said preform which includes at least a core and said inner area ~~portion~~ is formed by one of vapor axial deposition (VAD), outside vapor deposition (OVD), modified chemical vapor deposition (MCVD), plasma chemical vapor deposition (PCVD) , and a combination of any of these.

Claims 11-19. (Canceled)

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20. (Currently amended) An optical fiber manufactured by heating and drawing a preform, said preform comprising:

a multi-layer structure comprising silica-based glass and including:

an inside area ~~portion~~ disposed at an inner side of the radial direction of a position corresponding to two times of mode field diameter through which light having a wavelength of about 1385 nm propagates when the light passes through an optical fiber made by drawing the preform;

an outside portion disposed at an outer side of said inside area ~~portion~~, wherein at a temperature T_s, a maximum value V_0 [log(poise)] of a radial viscosity distribution in said outside portion is greater than 7.60 [log(poise)] and a maximum value V_0[log(poise)] of radial viscosity distribution in said inside area ~~portion~~ is 7.60 [log(poise)]; and

an outermost portion formed on said outside portion and having a viscosity less than a maximum value V_0 at the temperature T_s.

21. (Previously presented) An optical fiber as claimed in claim 20, wherein a transmission loss at wavelength of 1385 nm is equal to or less than 0.36db/km.

22. (Previously presented) An optical fiber as claimed in claim 20, wherein a transmission loss at wavelength of 1385 nm is equal to or less than 0.35db/km, in a case that said optical fiber is exposed to atmosphere containing 1% hydrogen for four days.

23. (Previously presented) An optical fiber as claimed in claim 20, wherein a transmission loss at wavelength of 1385 nm, in a case that the optical fiber is exposed to atmosphere containing 1% hydrogen for four days, does not substantially change compared with transmission loss at wavelength of 1385 nm before being exposed to the atmosphere.

24. (Previously presented) An optical fiber as claimed in claim 20, wherein said transmission loss at a wavelength of 1385 nm is no greater than 0.30db/km.

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25. (Currently amended) An optical fiber preform as claimed in claim 1, wherein said inner area ~~portion~~ comprises an inner clad layer formed on a core and having a first viscosity at said temperature, T_S; and wherein said outer area ~~portion~~ comprises an outer clad layer formed on said inner clad layer and having a second viscosity at said temperature, T_s, said second viscosity being greater than said first viscosity.

26. (Previously presented) An optical fiber preform as claimed in claim 25, wherein said core comprises quartz glass doped with germanium, such that said temperature T_s is about 1600 °C.

27. (Currently amended) An optical fiber preform as claimed in claim 25, wherein said ~~wherein said~~ outermost portion comprises an outermost clad layer formed on said outer clad layer and having a third viscosity which is lower than said second viscosity.

28. (Previously presented) An optical fiber preform as claimed in claim 2, wherein a diameter of said inner clad layer is less than 80% of an outer diameter of said preform.

29. (Canceled)

30. (Currently amended) An optical fiber preform as claimed in claim 1, wherein said inner area ~~portion~~ comprises an inner clad layer formed on a core and having a first viscosity at said temperature, T_s; and

wherein said outer area ~~portion~~ comprises an outer clad layer formed on said inner clad layer and having a second viscosity at said temperature, T_s,

wherein said second viscosity is greater than said first viscosity,

wherein a diameter of said inner clad layer is less than 80% of an outer diameter of said preform, and

wherein a surface of the optical fiber preform has a viscosity at temperature Ts which is lower than V_0.

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31. (Currently Amended) An optical fiber preform which is drawable to form an optical fiber having a mode field diameter for light at a wavelength of about 1385 nm, the preform comprising:

a multi-layer structure comprising silica-based glass and including:

an inner area ~~portion~~ disposed at an inner side of the radial direction of a position corresponding to two times of mode field diameter through which light having a wavelength of about 1385 nm propagates when the light passes through an optical fiber made by drawing the preform , and having a maximum viscosity of 7.60 [log(poise)] at a temperature T_s;

an outer area ~~portion~~ formed outside of said inner area ~~portion~~, and having a maximum viscosity of greater than 7.60 [log(poise)] at said temperature T_s; and

an outermost portion formed on said outer area ~~portion~~ and having a viscosity less than a maximum value V_0 at the temperature T_s.